

## **EE/CprE/SE 491 WEEKLY REPORT 5**

Start Date - February 27 , 2024

End Date - March 05, 2024

Group Number: 02

Project Title: Ames Substation

Client &/Advisor: Burns & McDonnell / Hugo Villegas

Team Members/Role:

Derek Elkins - Project Lead

Patrick Musoy - Pilot Scheme Researcher

Mackenzie Ray - Meeting Manager

Nathan Tegeler - Pilot Scheme Researcher

Matthew Wells - Pilot Scheme Researcher

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### **Weekly Summary:**

During this week we revised our piloting scheme document based on the feedback we received from our client. We also modified some of the relay selections based on the client feedback. We also changed our selection for the bus configuration to the ring bus which is a simpler configuration. We finalized the transformer protection and started working on the I/O reports for the selected relays.

### **Past Week Accomplishments:**

Mackenzie Ray: Took meeting notes with our client, went over relaying schemes, and asked questions about our relaying choices to ensure they worked. I also revised the design document for bus configuration because I think I did it wrong the first time.

Patrick Musoy: Finalized researching pilot schemes for different transmission line protection and relay selection. Did some research on relay and I/O requirements.

Derek Elkins: I started working on the CAD work for the bus configurations. I made the initial files and shared it with in our google drive for everyone to have access to them.

Nathan Tegeler: Revised piloting scheme based on client feedback. Started researching the transformer protection after talking with the client this turned out to be more complicated than initially thought. Also looked into defining more specific user information for more diverse user archetypes.

Matthew Wells: Started researching I/O assignments .

<u>Name</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>Cumulative Hours</u>
Derek Elkins	Started CAD work for Bus Configurations	3	10
Patrick Musoy	Finishing and finalizing the pilot scheme and selection of relays with the client and researching on relay and I/O requirements.	3	10.5
Mackenzie Ray	Revised design document for bus configuration and met with our client	2	8.5
Nathan Tegeler	Finalized Pilot scheme based on client feedback. Researched transformer protection	3	16
Matthew Wells	Started researching I/O assignments	1	10

**Action Item Table**

Status	Action Item	Assigned to	Due Date	Priority	Notes
Completed	Bus configuration	Derek Kenzie	2/20	High	Report is done.
In progress	Site Layout	Derek Kenzie	3/19	Medium	Going to start site layout this week
Complete	Piloting scheme report for transmission line	Patrick Nathan Matt	2/27	High	Completed selection for relays
In progress	Relay and I/O	Patrick	4/30	low	

	requirements	Nathan Matt			
In progress	Transformer protection scheme	Patrick Nathan Matt	3/4	High	

### **Plans for Upcoming Week**

Mackenzie Ray: Start on AutoCAD, focusing on site layout and getting a one-line diagram started

Patrick Musoy: Complete transmission line protection based on client preference. Researching on relay and I/O requirements, if possible, complete and finalizing relay and I/O requirements.

Derek Elkins: I plan to have a general design completed for the one-line, overview, and the elevation designs.

Nathan Tegeler: Complete transformer protection research and I/O requirements for relay.

Matthew Wells: Start to assign the I/O assignments to the relays we selected in our pilot scheme report.

### **Summary of Weekly Advisor/Client Meeting**

During our client meeting, we mainly talked about the relay schemes. Nathan, Matthew, and Patrick had specific questions to ask him regarding their choices for the relying of each line. They wanted to make sure that their choices would work for the intended purpose. At the end of our meeting, our client gave us a rough sketch of the protection specifically for the transformer, as it can be pretty complex and involved during design with no prior knowledge. We discussed beginning CAD work for the bus configuration, site layout, one-line drawings, and relaying schemes.